Bar-Ilan University ›› Computer Science ›› Introduction to Robotics

Foraging Tournament

TEAM 1

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Strategy

Our Strategy

1. **Spiralling Mode:**
   a. Scan for nearby food in spiral movement.
   b. Found food? switch to **RTB**.
   c. Bumped into something? switch to **Move**.
   d. This mode is not always useful so it is activated in certain times.

2. **Wandering:**
   a. **Move** "almost" randomly in the arena.
   b. Found food? switch to **RTB**.
   c. Teammate ahead? make an **soft-turn** to spread robots or make way for food-carrying robots.
   d. Obstacle ahead? make an **hard-turn** to avoid it.

3. **RTB – Return-To-Base:**
   a. Similar to Move/Wandering, except the robot turn to the nest if it sense it.
   b. Also, the robot slows-down when it sense any robot ahead.
   c. Dropped food? switch to **Move**.

Our Strategy

1. **Spiralling Mode:**
   a. Scan for nearby food in spiral movement.
   b. Found food? switch to RTB.
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   d. This mode is not always useful so it is activated in certain times.

Notes:
- Turning directions depends on the side of the object ahead.
- In any situation, when bumped, the robot will make a hard-turn.

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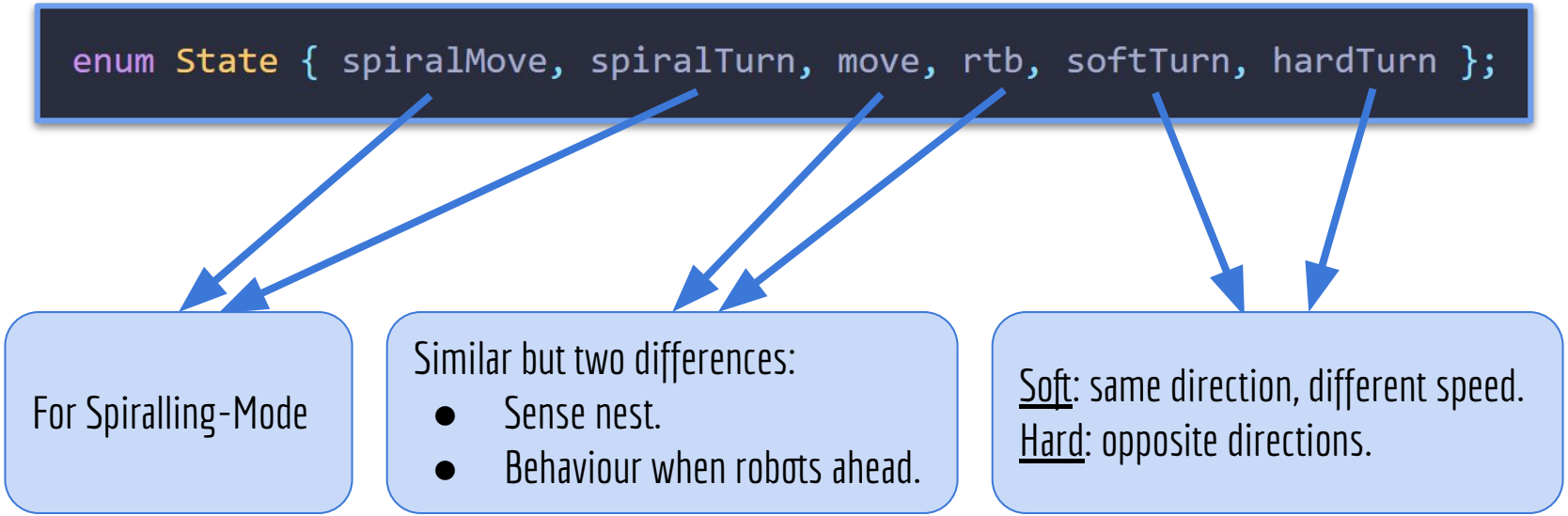
Our Strategy

States:

```
enum State { spiralMove, spiralTurn, move, rtb, softTurn, hardTurn };
```



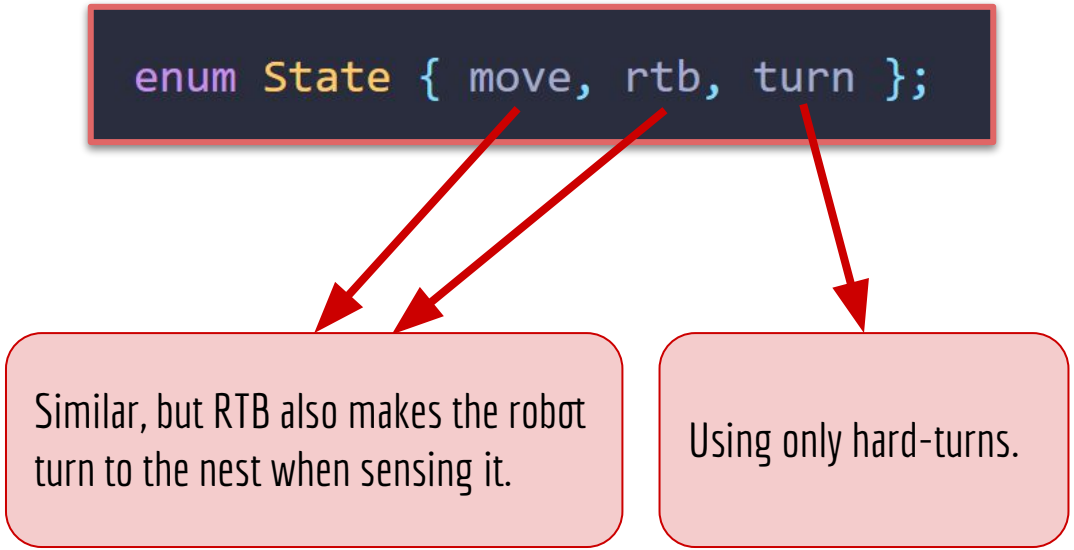
Red Team

“Their” Strategy

1. **Wandering:**
   a. **Move** randomly in the arena.
   b. Found food? switch to **RTB**.
   c. Bumped into something? change course by making a hard-**turn** to a random direction.
2. **RTB:**
   a. Similar to Move/Wandering, except the robot turn to the nest if it sense it.
   b. Dropped food? switch to **Move**.

“Their” Strategy

States:



Blue vs. Red

Blue vs. Red Experiments

ticks	10,000 clock-ticks			100,000 clock-ticks			1,000,000 clock-ticks		
seed	Blue	Red	Winner	Blue	Red	Winner	Blue	Red	Winner
1	24	22	Blue	211	189	Blue	1019	899	Blue
2	19	22	Red	181	175	Blue	1455	1434	Blue / Tie
3	18	24	Red	199	193	Blue	1457	1350	Blue
4	18	13	Blue	182	138	Blue	835	695	Blue
5	28	22	Blue	225	188	Blue	882	833	Blue
6	24	19	Blue	189	174	Blue	1280	1135	Blue
7	27	20	Blue	181	185	Red	780	762	Blue / Tie
8	23	21	Blue	201	165	Blue	1027	839	Blue
9	17	14	Blue	179	157	Blue	1072	906	Blue
10	26	16	Blue	159	153	Blue	1067	999	Blue
11	15	18	Red	224	184	Blue	1048	997	Blue
12	22	21	Blue	204	173	Blue	937	912	Blue
13	17	11	Blue	193	129	Blue	1072	875	Blue
14	22	16	Blue	186	153	Blue	798	721	Blue
15	15	16	Red	193	171	Blue	560	528	Blue

Upnext...

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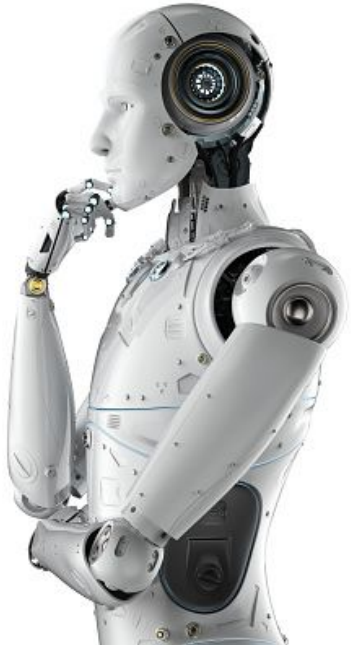
1. Figure out what useful information can be shared among robots.
2. Think about the use of `krembot.getName()`.
3. Continue testing the spiralling method and its usefulness.
4. Continue develop our secret master plan.



Thank You!